



DATE: March 25, 2003

TO: Interested Parties

FROM: Jeri Scott, Compliance Project Manager

SUBJECT: **Delta Energy Center Project (98-AFC-3C)**
Staff Analysis of Proposed Project Modification
Modify Emission Air Quality Conditions (AQ-27 (h), -28, -38, -39, -43, -44, -45 (f), -48 and -49)

On April 22, 2002, the California Energy Commission (Energy Commission) received a petition from the Calpine Corporation (Calpine), owner/operator, requesting a modification to the language in several of the Air Quality Conditions contained in the Commission Decision for the Delta Energy Center Project (DEC).

The proposed modification, if approved, will lower the DEC project annual emission limits for the following pollutants: 1) precursor organic compounds (POCs), 2) nitrogen oxides (NO_x), and 3) particulate matter less than 10 microns (PM₁₀). Calpine states in the petition that the request to lower the emission limits is based on the experience gained with respect to various pollutant emission rates, required since the licensing of DEC, and the expected operations and future plans for both DEC and the Calpine Pittsburg Power Plant (CPPP).

Additionally, the petition contains a proposed modification to: 1) lower the hourly and daily emission limits for PM₁₀, 2) revise startup/shutdown emission limits, and 3) delete AQ conditions that have been complied with.

Background

DEC, a nominal 880 MW combined-cycle natural gas-fired power plant was certified in February 2000, and commenced commercial operation on June 17, 2002. The power plant is located at 1200 Arcy Lane in the City of Pittsburg in eastern Contra Costa County.

The CPPP is an older existing power plant, located approximately 3.3 miles west of DEC. While CPPP was not permitted under the jurisdiction of the Energy Commission, it is an integral part of the Air Quality mitigation package, and is included in the Air Quality Conditions of Certification for DEC.

During the siting process for the DEC project, the Bay Area Air Quality Management District (BAAQMD) imposed operating restrictions on the existing CPPP gas turbines to ensure the permanence of the emission reduction credits proposed for DEC.

Removal of the operating restrictions from CPPP will result in an increase in the annual emission rates for the facility. However, Calpine is proposing that reducing the POC,

NO_x and PM₁₀ annual emission limits at DEC will offset the increased emission rates that will occur once the operating restriction is removed from gas turbines at CPPP.

The BAAQMD also reviewed the petition and based on its findings issued a revised Permit to Operate (PTO) to Calpine on October 3, 2002, which included the requested changes to the annual emission limits. The BAAQMD issued a final PTO to Calpine for DEC on January 8, 2003.

Conclusion

The Energy Commission staff reviewed the proposed petition and assessed the impacts of Calpine's proposal on environmental quality, public health and safety and proposes revisions to following Air Quality (AQ) Conditions of Certification: AQ-27 (h), -28, -38, -39, -43, -45 (f), -48 and -49. Based on information acquired from source tests and continuous emissions monitoring data, Calpine states in their petition that conditions AQ-66 and AQ-67 are now obsolete and should be deleted.

However, Calpine submitted the information required by the conditions, staff reviewed and determined that the information satisfied AQ-66 and AQ-67 and the conditions were closed on our database. Because the Energy Commission staff does not delete conditions of certification from the Commission Decision once they have been satisfied and closed, this portion of the petition is denied.

The Energy Commission staff agrees with the BAAQMD and concludes that with the implementation of the revised air quality conditions referenced above, the project will remain in compliance with applicable laws, ordinances, regulations, and standards. Additionally, the proposed project modification will not result in a significant adverse direct or cumulative impact to the environment.

The air quality analysis completed by the Energy Commission staff is attached for your information and review.

Recommendation

The Energy Commission staff intends to recommend approval of the petition at the April 30, 2003 Business Meeting of the Energy Commission. If you have comments on the proposed modification, please submit them to me at the address above on or before April 25, 2003. If you have any questions, please call me at (916) 654-4228 or e-mail me at jscott@energy.state.ca.us.

Attachment

REQUEST TO AMEND THE DELTA ENERGY CENTER PROJECT (DEC) 98-AFC-3 Amendment Request 4

Amendment Request

On April 22, 2002, the Delta Energy Center, LLC (Project Owner) proposed an amendment to the Delta Energy Center (DEC) Project (DEC 2002a). This amendment request seeks to lower the annual POC, NO_x and PM₁₀ emission limits for the DEC and as a result partially restore the original annual emission limits for the Calpine Pittsburg Power Plant (CPPP), whose permitted reduction in operation was used as part of the DEC offset mitigation plan. Additionally, this amendment seeks to lower the hourly and daily emission limits for PM₁₀, requests revised startup/shutdown emission limits, and requests the deletion of conditions that have been complied with. On October 3, 2002 the Bay Area Air Quality Management District (District) issued a revised Permit to Operate for the DEC (District 2002), which included the requested changes to the DEC annual emissions. January 8, 2003, the District issued its final Permit to Operate for the DEC (District 2003).

The CPPP is an older existing power plant that was not permitted under the jurisdiction of the CEC, although it is an integral part of the air quality mitigation package, and is thus included in the Conditions of Certification.

Background

In December 1998, Calpine proposed to construct and operate an 880 megawatt (MW) combined cycle project in Pittsburg, California. The Delta Energy Center Project was certified in February 2000 (CEC 2000). The original project design included three natural gas fired 7F type combustion turbine generators (CTG), three heat recovery steam generators with duct firing, a steam turbine generator, two auxiliary boilers, a cooling tower, and diesel fired emergency equipment.

Previously approved amendments have removed the auxiliary boilers and changed the size of the cooling tower. The DEC began operations during the spring of 2002.

Laws, Ordinances, Regulations, And Standards

The California State Health and Safety Code, section 41700, requires that “no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.”

Analysis

Emissions Analysis

The changes that affect DEC air emissions include:

- A decrease in the hourly DEC PM₁₀ emission rate to 9.0 lbs/hour from 10.0 lbs/hour (no duct firing) and 12.0 lbs/hr (with duct firing). A decrease in the daily and annual DEC PM₁₀ emission rates due to the change in hourly emission factors.
- A decrease in the annual DEC NO_x and VOC emission rate due to better than anticipated performance and due to a change in the emission estimation assumptions.
- Revisions to the turbine start-up and shutdown emission rates.

No changes are proposed for any other steady state hourly, daily, or annual permitted emission limits for the DEC. This amendment does not affect the emission units other than the turbine/HRSGs (e.g. cooling tower, emergency equipment) at the DEC.

The requested changes in the turbine/HRSG operating emissions are shown in **Table 1**.

Table 1 – Proposed Changes to the DEC Emission Limits

Pollutant	Original Permitted Turbine/HRSG Emissions (lbs/hour)	Proposed Turbine/HRSG Emissions (lbs/hour)	Original Permitted Turbine/HRSG Emissions (tons/year)	Proposed Turbine/HRSG Emissions (tons/year)	Annual Emissions Reduction (tons/year)	Original Permitted Shutdown Emissions (lb/shutdown)	Proposed Shutdown Emissions (lb/shutdown)
NO _x	19.2	No change	276.6	240.2	36.4	18.1	80
POC	5.33	No change	73.6	64.68	8.92	8	16
PM ₁₀	10.0/12.0 ^a	9.0 ^b	136.37	118.26	18.11	^c	^c
CO	46.75	No change	1,105.4	No Change	---	44.1	902

a. Emission limit without duct firing/with duct firing.
b. Emission limit with or without duct firing.
c. No separate limit for startup and/or shutdown applies, so the normal hourly emissions limit applies during shutdown.

Source: DEC 2002a, District 2003

The project owner is requesting that these new lower annual emission limits be used to reduce the offset burden for the DEC. This reduction in offset burden would allow the permit conditions limiting the CPPP POC and PM₁₀ emissions to be eliminated and would increase the annual NO_x emission limit for the CPPP from 18.5 tons per year to 54.9 tons/yr. The overall annual emissions revisions for the two facilities are provided in **Table 2**.

Table 2 – Requested Changes to the DEC/CPPP Annual Emission Limits

Pollutant	CPPP Original Emissions Curtailment (tons/year)	Revised CPPP Emissions Curtailment (tons/year)	Reduction in CPPP Emissions Curtailment (tons/year)	DEC Emission Reduction (tons/year)	Net Emissions Change (tons/year)
NO _x	77.71	41.31	36.4	-36.4	0
POC	8.92	0	8.92	-8.92	0
PM ₁₀	18.11	0	18.11	-18.11	0

Table 2 shows that the requested annual emission limit permit modifications result in no net effect to the combined permitted emissions for the two facilities. Therefore, the

overall local emission limits are not affected by the requested permit modifications. The annual emission limits for SO₂ and CO are unaffected by the requested changes.

It is the project owner's contention that the emission factors and emission calculation assumptions used in the original emission calculations presented for licensing the project were overly conservative. After staff questioning, the project owner provided additional supporting calculations (McBride 2003), attached as **Appendix A**, and a copy of the Initial Emission Compliance Test Report (Avogadro 2002a). Staff has reviewed the available emission source tests and continuous monitoring data and provides the following comparison of these values with the project owner emission calculation assumptions in **Table 3**.

Table 3 indicates that the assumptions used by the project owner, with the sole exception of the startup POC emissions, are conservative based on the available source test and CEMS data. The startup POC emissions assumption used in Appendix A should be higher than 16 lbs/hr, based both on the source test data and on the permit limit. However, the normal operating POC emission assumptions are very conservative in relation to the source test results, so much so that staff considers the revised annual POC emission estimate presented in Appendix A to be conservatively over predictive even considering the startup POC emission factor used in the calculation.

Staff would also like to point out a simple numeric error in Appendix A. The number of combined hours listed for baseload for each turbine based on the hours of operation at three ambient temperature levels is erroneously indicated to be 7,079 hours, while the correct value should be 6,944. Regardless of this error, the total number of hours used in the calculations is 8,594, which represents a fairly conservative 98% plant utilization factor.

The NO_x emissions are continuously monitored and compliance with the requested new annual NO_x emission limit can be demonstrated using this monitoring data. The CEMS data for the period of data from July through October indicates a total of 48.8 tons of NO_x emissions (DEC 2002b). If this emission rate were extrapolated to a full year it would be 146.5 tons/year, which is considerably less than the requested annual NO_x limit of 240.2 tons/year.

The POC and PM₁₀ emissions are not continuously monitored and the emissions data are limited to a few source tests. However, the general magnitude of emissions shown in the DEC compliance source test is comparable to other recent power plant source tests. Therefore, staff believes that the emission factors being used by the Applicant to justify the new annual emission limit for DEC, which are considerably higher than the source test result values, are conservative. Additionally, DEC will have annual source tests to confirm the revised annual emission calculation basis.

Table 3 – DEC Turbine/HRSG Emission Assumptions Comparison

Pollutant	Project Owner Emission Factor Assumptions				Source Test Data				CEM Data
	Normal Operations		Startup/Shutdown		Normal Operations		Startup/Shutdown		Average Emissions
	No Duct Firing (lbs/hour)	Duct Firing (lbs/hour)	Startup/Shutdown ^b (lbs/hour)	Turbine	Minimum Load (lbs/hour)	Duct Firing (lbs/hour)	Startup (lbs/event)	Shutdown (lbs/hour)	(lbs/hour) ^c
NO _x	16.44 to 17.95 ^a	19.21	80	Turbine 1	ND	15.46	ND	ND	12.86
				Turbine 2	ND	15.59	19.03	4.18	10.63
				Turbine 3	ND	15.81	ND	ND	10.82
POC	4.56 to 4.98 ^a	5.33	16	Turbine 1	0.69	0.60	ND	ND	ND
				Turbine 2	0.65	0.81	22.3	5.85	ND
				Turbine 3	0.77	1.60	ND	ND	ND
PM ₁₀	9.0	9.0	9.0	Turbine 1	ND	5.399	ND	ND	ND
				Turbine 2	ND	2.37	ND	ND	ND
				Turbine 3	ND	2.363	ND	ND	ND
CO	24.00 to 26.21 ^a	28.05	2514/902	Turbine 1	3.10	3.29	ND	ND	5.90
				Turbine 2	11.79	3.62	739.66	632.36	3.75
				Turbine 3	6.96	4.58	ND	ND	4.00

a. Emission assumption dependent on ambient temperature.

b. Emission assumption is the same for startup and shutdown for NO_x, POC and PM₁₀.

c. Averages from August through October monthly compliance reports. These averages are directly from the reports, staff is uncertain if these values include or exclude down time from the monthly hourly average emissions values.

ND – No Data

Source: Avogadro 2002a, Avogadro 2002b, McBride 2003

The number of startup/shutdowns can affect the emission calculations provided in **Appendix A**, so staff sought confirmation from the DEC that the number of startup/shutdowns assumed. According to the Project Owner the number of startups for the three turbines have been 46, 34 and 54, respectively for the three turbines since May. This corresponds well with the 100 startups per turbine assumed in **Appendix A**. The actual amount of time per start and per shutdown, per the startup/shutdown source test (Avogadro 2002b), is less than one hour, so the overall startup/shutdown emissions are likely to be conservatively estimated. Additionally, the assumed normal operating emissions appear, based on source test and CEM data, to be very conservative, so staff considers the emission estimate provided in **Appendix A** to be a conservative estimate.

The requested changes to the startup/shutdown emission levels delete the hot-start category and combine all starts under the former cold-start emission limits and increase the shutdown emission limits to those originally proposed for hot-starts. These changes do not cause an increase to the maximum emission potentials or impact the short-term modeling results. The source test results showed maximum lb/shutdown values of 5.34 lbs/event for NO_x, 824.30 lbs/event for CO, and 8.19 lbs/event for VOC. This shows that the shutdown emissions would violate the existing shutdown event emission limits for CO and VOC. Additionally, staff believes that the requested shutdown event emission limits of 902 lbs CO/shutdown and 16 lbs POC/shutdown would provide a reasonable margin of safety for these two pollutants. The requested increase to the shutdown NO_x emission limit, from 18.1 lbs/shutdown to 80 lbs/shutdown, does not appear to be justified based on the available shutdown emissions data. However, since the District has approved this new limit and since the new limit will not result in a significant impact staff will agree to revise the shutdown NO_x emission limit as requested.

The project owner is requesting that two conditions (AQ-66 and AQ-67) that are the requirements to surrender Emission Reduction Credits prior to operation of the project be deleted. The rationale given was that since the ERCs have already been surrendered, and thus the conditions have been satisfied, that there is no need for these conditions. The staff however, does not agree to remove Conditions AQ-66 and AQ-67, for the following reason. The project includes the ERCs as a mitigation measure. By removing the mitigation requirements from the conditions, the historical record would be deficient and inaccurate by not reflecting the mitigation measures. By accepting such a proposal, staff could be in a position of processing endless amendments for conditions of certification for construction mitigation requirements and offset requirements once those conditions are satisfied. Staff does not desire to be put in such a position. To preserve the historical record on the case, conditions of certification that have already been met, will remain in the Conditions of Certification.

Impact Analysis

The project owner has not requested, with the exception of PM₁₀, that the short-term emission limits be revised. Therefore, the short-term emission impacts, other than for PM₁₀, are not affected by this amendment request either solely or cumulatively. The DEC 24-hour PM₁₀ impacts, if modeled, would be somewhat lower than initially analyzed due to the reduction in the assumed emissions. The annual NO₂ and PM₁₀ impacts from the plant, if modeled, would be somewhat lower due the assumed

reduction in annual emissions. Therefore, staff does not believe that this amendment request would result in significant project impacts.

The annual cumulative NO₂ and PM₁₀ impacts might be somewhat higher or somewhat lower depending on the location from the DEC and CPPP. However, the overall cumulative impacts would not cause violations in the NO₂ AAQS and would not be expected to cause measurable differences in PM₁₀ concentrations. Therefore, staff does not believe that this amendment request would result in significant cumulative impacts.

The higher requested shutdown emission levels are less than the current start-up permit emission levels. The start-up emission levels were analyzed during the original permitting proceedings, and were found not to cause a significant air quality impact. Thus, the revised higher shutdown limits, being less than the startup emission levels, would also not cause a significant impact.

Mitigation

The DEC is an operating plant that was fully mitigated as determined necessary through the initial commissioning process. Part of this mitigation was through contemporaneous emission reductions from the CPPP. The Project Owner is seeking to remove most of the restrictions on the CPPP. The proposed changes will lower the allowable emissions from the project and recovering those emissions for use at the CPPP, leaving the project fully mitigated.

The contemporaneous emission reductions at the CPPP were initially proposed to address concerns from staff and local residents. However, removing this mitigation while requiring lower DEC annual emissions will result in no permitted change in the local emission limits.

Conclusions and Recommendations

The owner of the Delta Energy Center, Delta Energy Center, LLC, is proposing to lower the PM₁₀, NO_x and POC emission limits, revise the startup/shutdown emission limits, and delete the ERC surrendering conditions. The proposed changes will also affect the emission limits imposed on the Calpine Pittsburg Power Plant, whose permitted emission reductions were being used as part of the DEC emissions offset package. The available source test and continuous emission monitoring data support the proposal to lower the emission estimates for the plant. Additionally, the revisions to the startup/shutdown limits do not impact worst-case short-term emissions or emission impacts, although the emissions data compiled during turbine shutdowns do not warrant the higher NO_x emission limits that are being requested. For reasons explained above, staff does not agree to remove the conditions that required the surrendering of ERCs. Staff conditionally agrees with most of the project owner's amendment proposal, with the necessary revisions to the Conditions of Certification.

Proposed revised Conditions of Certification are attached below.

Conditions of Certification

The purpose for each change is as follows:

CEC Condition	District Permit #	Purpose for Change
AQ-27	22	Reduces short-term PM ₁₀ emission rate to 9.0 lbs/hour per turbine/HRSG.
AQ-28	23	Requests revised startup/shutdown emission limits.
AQ-38	26	Increases NO _x limit on CPP and eliminates VOC and PM ₁₀ limits. NO _x compliance for Condition AQ-38 will be determined based on CEMS data.
AQ-39	27	Requests deletion of this condition as the heat rate limitation on the CPPP is no longer necessary.
AQ-43	31	Conforming changes due to deletion of VOC and PM ₁₀ limits on Condition AQ-38.
AQ-44	32	Conforming changes due to deletion of VOC and PM ₁₀ limits on Condition AQ-38.
AQ-45	33	Conforming changes due to deletion of VOC and PM ₁₀ limits on Condition AQ-38.
AQ-48	36	Reduces daily PM ₁₀ emission rate to 648 lbs/day based on revised hourly emission rate of 9.0 lbs/hour per turbine/HRSG.
AQ-49	37	Reduces annual DEC emission limits for NO _x , POC and PM ₁₀ .

The conditions of certification are shown in part where the condition is particularly long and only a small section of the condition needs to be revised. The revisions are shown below in redline/strikeout.

AQ27...

- (h) Particulate Matter (PM₁₀) mass emission at P-1, P-2, and P-3 each shall not exceed 9.0 pounds per hour or 0.00424 lb/MM BTU of natural gas Fired. (BACT)

AQ-28 The regulated air pollutant mass emission rates from each of the Gas Turbines (S-1, S-3, and S-5) during a start-up or a shutdown shall not exceed the limits established below. (PSD)

	Start-Up (lb/start-up)	Shutdown (lb/shutdown)
Oxides of Nitrogen (as NO ₂)	240	80
Carbon Monoxide (CO)	2,514	902
Precursor Organic Compounds (as CH ₄)	48	16

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall indicate the date, time, and duration of any violation of this Condition. The owner/operator shall also include quantitative information on the severity of the violation.

AQ-38 Cumulative combined emissions from the Calpine/Dow Gas Turbines (S-67, S-70, and S-73) and Waste Heat Boilers (S-68, S-71, and S-74), including emissions generated during Gas Turbine Start-ups and Shutdowns shall not exceed the following limit during any consecutive twelve-month period:

- (a) 54.9 tons of NO_x (as NO₂) per year (Offsets)

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall indicate the date of any violation of this Condition including quantitative information on the severity of the violation.

Verification: AQ-39 Deleted.

AQ-43 The owner/operator of S-67, S-70, and S-73 Gas Turbines shall perform a source test to determine the NO_x mass emission rates and the accuracy of the NO_x CEMs during gas turbine start-ups and shutdowns. The source test shall also determine the accuracy of the NO_x CEMs during gas turbine start-ups and shutdowns. If the NO_x CEMs do not accurately assess emissions during start-ups and/or shutdowns (as determined by APCO), then the District-approved source test results for NO_x mass emissions shall be utilized as an emission factor for the purposes of determining compliance with condition 38(a). (offsets, cumulative increase)

Verification: Approval of the source test protocols shall be deemed as verification for this condition. The owner/operator shall notify the District and the CEC CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CEC CPM within 30 days of the date of the tests.

AQ-44 The owner/operator of S-67, S-70, and S-73 Gas Turbines and S-68, S-71, and S-74 Waste Heat Boilers shall perform a District-approved source test for NO_x mass emission rates in lb/hr and lb/MM BTU of natural gas fired at maximum operating rates at least once every 8,000 hours of turbine operation or every three calendar years, whichever comes first. (offsets, cumulative increase)

Verification: Approval of the source test shall be deemed as verification for this condition. The owner/operator shall notify the District and the CEC CPM within seven (7) working days before the execution of the source tests required in this condition. Source test results shall be submitted to the District and to the CEC CPM within 30 days of the date of the tests.

AQ-45 ...

- (f) on a monthly basis, the cumulative total NO_x mass emissions (as NO₂) for the previous consecutive twelve month period for all six sources (S-67, S-68, S-70, S-71, S-73, and S-74) combined.

(1-520.1, 9-9-501, Offsets)

Verification: At least 60 days before the initial operation, the owner/operator shall submit to the CEC CPM a plan on how the measurements and recordings required by this condition will be performed. Submittal of the reports will also provide verification of compliance with this condition.

AQ-48 Total combined emissions from the Gas Turbines and HRSGs (S-1, S-2, S-3, S-4, S-5, and S-6), including emissions generated during Gas Turbine start-ups and shutdowns shall not exceed the following limits during any calendar day:

- | | |
|--|--------|
| (a) 1990.8 pounds of NO _x (as NO ₂) per day | (CEQA) |
| (b) 12,756.4 pounds of CO per day | (PSD) |
| (c) 478.2 pounds of POC (as CH ₄) per day | (CEQA) |
| (d) 648 pounds of PM ₁₀ per day | (PSD) |
| (e) 96.6 pounds of SO ₂ per day | (BACT) |

Verification: As part of the semiannual Air Quality Reports, the owner/operator shall indicate the date of any violation of this Condition including quantitative information on the severity of the violation.

AQ-49 Cumulative combined emissions from the Gas Turbines and HRSGs (S-1, S-2, S-3, S-4, S-5, and S-6), including emissions generated during gas turbine start-ups and gas turbine shutdowns shall not exceed the following limits during any consecutive twelve-month period:

- | | |
|--|-----------------------|
| (a) 240.2 tons of NO _x (as NO ₂) per year | (Offsets, PSD) |
| (b) 1,116 tons of CO per year | (Cumulative Increase) |
| (c) 64.48 tons of POC (as CH ₄) per year | (Offsets) |
| (d) 118.26 tons of PM ₁₀ per year | (Offsets, PSD) |
| (e) 18.6 tons of SO ₂ per year | (Cumulative Increase) |

Verification: As part of the annual Air Quality Reports, the owner/operator shall indicate the date of any violation of this Condition including quantitative information on the severity of the violation.

REFERENCES

- The Avogadro Group LLC (Avogadro) 2002a. Initial Emission Compliance Test Report. Delta Energy Center (Docket No. 98-AFC-3), June 2002.
- The Avogadro Group LLC (Avogadro) 2002b. Report for Startup and Shutdown Emission Tests. Delta Energy Center (Docket No. 98-AFC-3), June 2002.
- Bay Area Air Quality Management District (District) 2002. Approval of request for permit condition revisions. October 3, 2002.
- Bay Area Air Quality Management District (District) 2003. Final Permit to Operate for the Delta Energy Center. January 8, 2003.
- California Energy Commission (CEC) 2000. Commission Decision – Delta Energy Center (Docket No. 98-AFC-3), February, 2000.
- Delta Energy Center LLC (DEC) 2002a. Applicant's Petition to Amend Various Air Quality Conditions. Delta Energy Center (Docket No. 98-AFC-3), April 2002.
- Delta Energy Center LLC (DEC) 2002b. October Monthly Compliance Report. Delta Energy Center (Docket No. 98-AFC-3). November 2002.
- McBride 2003. Emission Spreadsheet Supporting the Proposed DEC Amendment. E-mailed from Barbara McBride, Calpine, to William Walters, Aspen Environmental Group, January 29, 2003. (Provided as Appendix A).

Appendix A

Project Owner's Emission Calculations in Support of the Amendment Request